

must have had, too, a ready familiarity with numerical ratios; and, moreover (that in which, probably, his superiority most consisted), a disposition to connect one notion with the other—the musical relation with the arithmetical, if it were found possible. When the connection was once suggested, it was easy to devise experiments by which it might be confirmed.

“The philosophers of the Pythagorean School,<sup>2</sup> and in particular, Lasus of Hermione, and Hippasus of Metapontum, made many such experiments upon strings; varying both their lengths and the weights which stretched them; and also upon vessels filled with water, in a greater or less degree.” And thus was established that connection of the Idea with the Fact, which this Science, like all others, requires.

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I shall quit the Physical Sciences of Ancient Greece, with the above brief statement of the discovery of the fundamental principles which they involved; not only because such initial steps must always be the most important in the progress of science, but because, in reality, the Greeks made no advances beyond these. There took place among them no additional inductive processes, by which new facts were brought under the dominion of principles, or by which principles were presented in a more comprehensive shape than before. Their advance terminated in a single stride. Archimedes had stirred the intellectual world, but had not put it in progressive motion: the science of Mechanics stopped where he left it. And though, in some subjects, as in Harmonics, much was written, the works thus produced consisted of deductions from the fundamental principles, by means of arithmetical calculations; occasionally modified, indeed, by reference to the pleasures which music, as an art, affords, but not enriched by any new scientific truths.

[3d Ed.] We should, however, quit the philosophy of the ancient Greeks without a due sense of the obligations which Physical Science in all succeeding ages owes to the acute and penetrating spirit in which their inquiries in that region of human knowledge were conducted, and to the large and lofty aspirations which were displayed, even in their failure, if we did not bear in mind both the multifarious and comprehensive character of their attempts, and some of the causes which limited their progress in positive science. They speculated and

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<sup>2</sup> Montucla, iii. 10.